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## CLAIMS

I claim as my invention:

- 1) A roof vent system that limits the pressure difference that can occur across a roof to a set value. This system uses vents for the purpose of preventing the occurrence of a pressure difference greater than a specific set value across a roof (across a roof meaning between the interior and exterior of a building). This involves an understanding and use of a vent's ability to limit the maximum pressure difference that may occur, as opposed to previous art, which uses vents as pressure equalization or pressure relief tools. (Reference may be made to previous text for greater detail)

The vents used pass through the roof connecting the interior of the building with the outside atmosphere.

- a) I have written equations that take data for the worst-case scenario pressure change above a building, the volume of the building and the pressure difference that the roof components of the specified building will tolerate. These equations are used to give a value for the cross-sectional area/number of vents required in the system for each given building. Once this venting area required to limit the pressure difference is arrived at there are three more parameters governing its placement.
  - i) The calculated area of venting must be placed such that that venting area is 'visible' to winds blown from each and every direction. (i.e. the calculated venting area is exposed to windward for all wind directions. The positive effects on air evacuation of the pressure drop on the turbulent drag / leeward side of the building are discounted {They represent a safety margin})
  - ii) The venting area is spread evenly across the roof, with concentrations weighted in correlation with pressure values measured for the different areas of a roof. (A typical value for vent concentration might be on average one vent per 200sq feet {an absolute value will depend on the volume of the building and so will vary slightly from structure to structure.})
  - iii) Wind sheer data is used to indicate the minimum length of windward facing roof for which the calculated vent area is sufficient.
- 2) I also claim the design of the vent specified for use in this system. This design represents the preferred embodiment of vent type. It is as follows:

Vent A has the following properties:

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(Please see Figs 4a through 4f for diagrammatic representations)

- 7) Cap prevents rain from entering, (even most horizontally blown rain).
- 8) Cap is smaller than base plate so that bars slope in. This makes it more difficult for blown debris to catch on the vent.
- 9) Vertical bars are spaced such that the gap size doesn't allow bees access. (vents cannot become hive sites)
- 10) Any water that does enter the vent shaft is collected and channeled through a tube into the drains. The tube might alternatively direct the water outside the building, if this proves easier.
- 11) The central plug is 'free floating' on a central shaft.
- 12) Once the central plug is pushed up it acts like an airplane wing. Air rushing through the vent 'flies' the central plug up on its shaft. The vent stays open as long as high-speed winds are blowing through it. When the wind speed drops the plug sinks down to close the vent.

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tory subject matter. Applicant should not use numbers for paragraph since this is confusing as to how many claims are being presented. Paragraphs 7-10 are indefinite because the elements are not positively recited plus they are presented in a catalogue form. Further, the claim is indefinite because applicant has claim two embodiments in a single claim. Note the format of the claims in the patent(s) cited as an example on how applicant should write his claim.

### ***Response to Arguments***

5. Applicant's arguments with respect to the claim have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee of \$165.00.

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing

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are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 1 has been renumbered 3. Original claims 1 and 2 have been canceled as intended by applicant.

**Claim Rejections - 35 USC § 112**

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 3 is rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph which requires the claims to particularly point out and distinctly claim.

The claim(s) are narrative in form and replete with indefinite and functional or operational language. [The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claim(s) must be in one sentence form only. For example, the parentheses and brackets throughout the claim render the claim confusing. Periods should not be used throughout the body of the claim but only at the ending so that the claim will be in one sentence form. In lines 5-9, the language "This involves an ... relief tools." fails to particularly point out and distinctly claim since it is directed only to operational language and the prior art; moreover, prior art structure should not be claim since the claim should be directed to applicant's invention. In lines 10 and 11, there is insufficient structure for the function "used pass through ... outside atmosphere.". Paragraphs 1a, I, ii, iii and 2 are directed to nonstatu-

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## CLAIMS

Different and varying embodiments may be taught within the scope of the inventive concept that I have put forward here. As such the descriptive detail required by the law is to be taken as illustrative and not applied in a limiting sense.

I claim as my invention:

- 1) A roof vent system that acts and has as its objective to distinctly limit the pressure difference that can occur across a roof to a set value, the system being comprised of the following components and built to the following design parameters:
  - a. vents which pass through the roof, connecting the interior of the building with the outside atmosphere such that air may flow freely between the interior and exterior of the building;
  - b. equations into which are input data for the worst-case scenario pressure change above a building, the volume of the building and the pressure difference across the roof (across a roof meaning between the interior and exterior of a building) that the roof components of the specified building will tolerate, these said equations with said mentioned data providing a specific solution for the area (number of vents required) for the system to perform its objective of pressure difference limitation to a desired and set value in each application;
  - c. a parameter incorporating wind shear data which is applied to the area solution provided by the equation in b. to give the next and more accurate value for the final required venting area solution;
  - d. a parameter applied whereby calculated area of venting from b. and c. must be placed such that said venting area is 'visible' to winds blown from each and every direction, (i.e. the calculated venting area is exposed to windward for all wind directions, ~~the positive effects on air evacuation of the pressure drop on the turbulent drag / leeward side of the building are discounted (they represent a safety margin)~~);
  - e. a parameter which takes the area of venting dictated by b. c. and d. and spreads its standardized component vents evenly across the appropriate roof areas.
- 2) The use of the following specified vent apparatus as a pressure limiting tool in the over-all roof vent system as expressed in claim 1), the vent apparatus details being as follows:
  - a. a vent structure which is comprised of a cylindrical tube that passes through the roof and acts as the means for connection and air flow between the interior and exterior of the building (see fig 4a);
  - b. a circular plate and vent cap sit atop the roof, (see fig 4a, 4b and 4e) the cap prevents rain from entering even most horizontally blown rain, and any water that does enter the vent shaft is collected and channeled through a tube into the drains or alternatively directed outside the building to the ground, if this proves more convenient (see fig 4f), a ring of vertical bars

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- separate these two plates and the cap is smaller than the base plate so that the bars slope in, making it difficult for blown debris to catch on the vent, the said vertical bars being spaced such that the gap size doesn't allow bees, or birds access (vents cannot become nest or hive sites (see fig 4b);
- c. the vent end opening to the exterior of the building is closed by a plug, (see figs 4b, 4c and 4d) said plug being 'free floating' on a central shaft, said plug being of a correct weight to be opened by a pressure difference less than the roof's designated  $P^*$  value and said plug once pushed open acting like an airplane wing, air rushing through the vent flies said plug up on its shaft, keeping the vent open as long as high speed winds are blowing through the vent, said plug upon cessation of high speed winds sinks down to close the vent, said plug having a small valved hole which allows air to flow back slowly into the building when said plug is closed;

## ABSTRACT

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